

## **Advanced Forging Manufacturing Innovations**

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### **Description:**

**OBJECTIVE:** The Defense Logistics Agency (DLA) seeks to provide responsive, best value repair parts consistently to our customers, including forged parts which are made when metal is pressed or hammered under great pressure. DLA continually investigates diverse technologies for manufacturing forgings which would lead to the highest level of innovation in the support of fielded weapon systems with a future impact on both commercial technology and government applications. As such, advanced technology demonstrations for affordability and advanced industrial practices to demonstrate the combination of innovative forging manufacturing processes and business methods are of interest. All these areas of forging manufacturing provide potential avenues toward achieving breakthrough advances. Proposed efforts funded under this topic may encompass any specific forging technology at any level resulting in a unit cost reduction. Research and Development efforts selected under this topic shall demonstrate and involve a degree of risk where the technical feasibility of the proposed work has not been fully established. Further, proposed efforts must be judged to be at a Technology Readiness Level of less than 6 -- system/subsystem model or prototype demonstration in a relevant environment -- but greater than 3 -- analytical and experimental critical function and/or characteristic proof of concept -- to receive funding consideration. **DESCRIPTION:** DLA seeks drastically lower unit costs of forged spare parts support through manufacturing revolutions that also have applicability to low or high volume production from commercial sales. This will result in an improvement in the affordability of these innovations to DLA and its customers and the development of cost effective methods to sustain existing defense systems while potentially impacting the next generation of defense systems. The proposals must include and will be judged, in part, on an economic analysis of the expected market impact of the technology proposed. This topic

seeks a revolution in the reduction of unit cost metrics. Incremental advancements will receive very little consideration. DLA seeks herein only projects that are too risky for ordinary capital investment by the private sector. PHASE I: Determine, insofar as possible, the scientific, technical and commercial feasibility of the idea. Include, where appropriate, a process technology roadmap for implementing promising approaches for near term insertion in support of Department of Defense (DoD) systems, subsystems or component production. PHASE II: Develop applicable and feasible prototype demonstrations for the approach described, and demonstrate a degree of commercial viability. Validate the feasibility of the innovative forging manufacturing process by demonstrating its use in the production, testing and integration of items for DLA. Validation would include, but not be limited to, system simulations, operation in test-beds, or operation in a demonstration system. A partnership with a current or potential supplier to DLA is highly desirable. Identify any commercial benefit or application opportunities of the innovation. Innovative processes should be developed with the intent to readily transition to production in support of DLA and its supply chains. PHASE III: Technology transition via successful demonstration of a new process technology. This demonstration should show near-term application to one or more Department of Defense systems, subsystems or components. This demonstration should also verify the potential for enhancement of quality, reliability, performance and/or reduction of unit cost or total ownership cost of the proposed subject. Private Sector Commercial Potential: Forging manufacturing innovations have a direct applicability to many defense system technologies. New forging technologies, processes, and systems have wide applicability to the defense industry including air, ground, sea, and weapons technologies. There is leverage into the private sector industries as well as civilian sector relevance. Many of the technologies under this topic would be directly applicable to other DoD agencies, NASA, and many commercial manufacturing venues. Forging Manufacturing Innovations would directly improve production in the commercial sector resulting in reduced cost and improved productivity.